

```
94     if (strlen($hex_str) == 6) {
95         $color_val = hexdec($hex_str);
96         $rgb_array['r'] = 0xFF & ($color_val >> 0x10);
97         $rgb_array['g'] = 0xFF & ($color_val >> 0x8);
98         $rgb_array['b'] = 0xFF & $color_val;
99     } elseif (strlen($hex_str) == 3) {
100         $rgb_array['r'] = hexdec(str_repeat(substr($hex_str, 0, 1), 2));
101         $rgb_array['g'] = hexdec(str_repeat(substr($hex_str, 1, 1), 2));
102         $rgb_array['b'] = hexdec(str_repeat(substr($hex_str, 2, 1), 2));
103     } else {
104         return false;
105     }
106 }
107 }
108 // Draw
109
```

# Inteligência Artificial: do Zero ao Infinito

Supervised Learning

# Estratégias de Aprendizado

	Supervised Learning	Unsupervised Learning
Discrete	Classification or Categorization	Clustering
Continuous	Regression	Dimensionality reduction

# **Classificação**

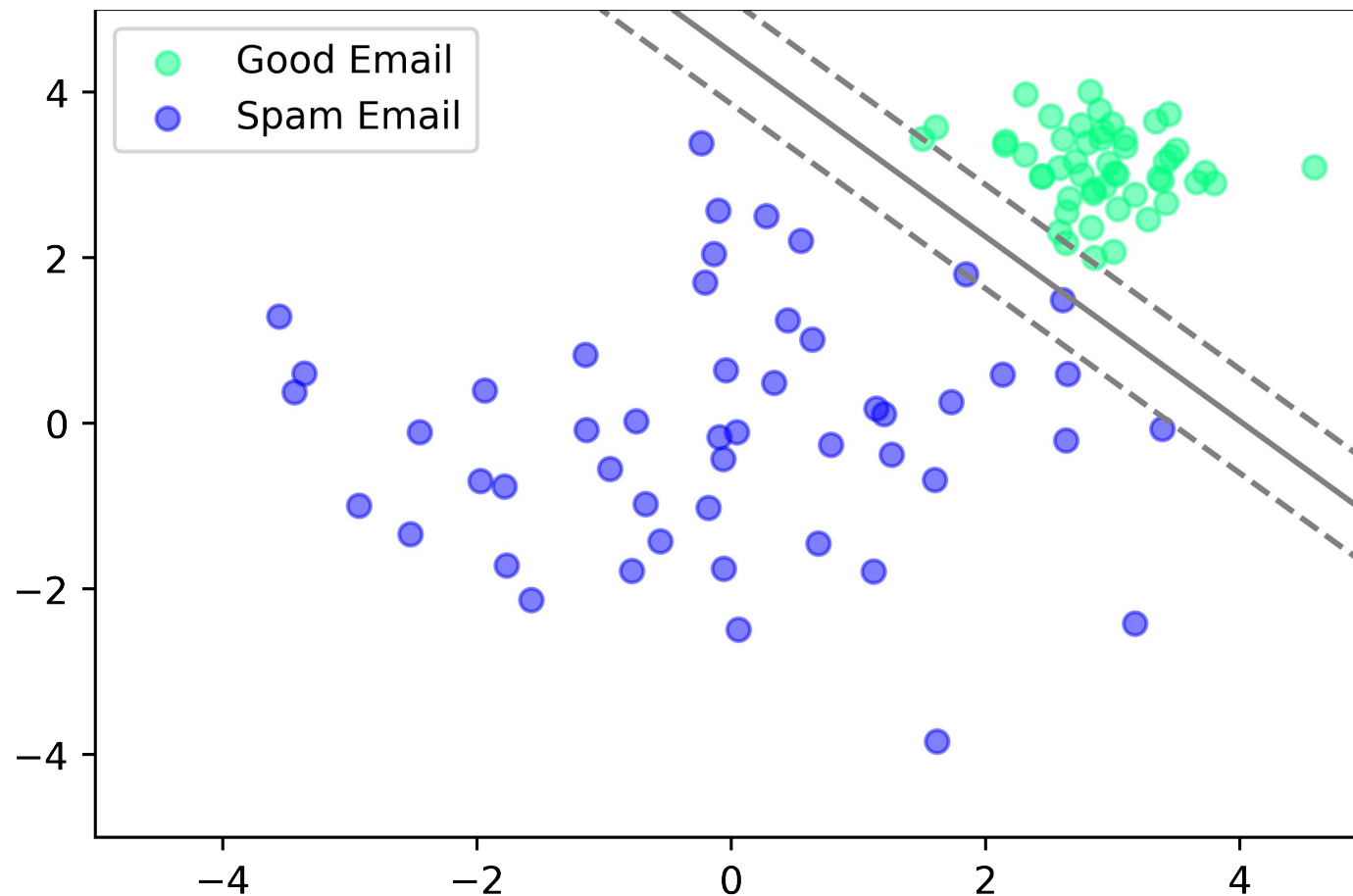
Supervised Learning

## Exemplo com SVM



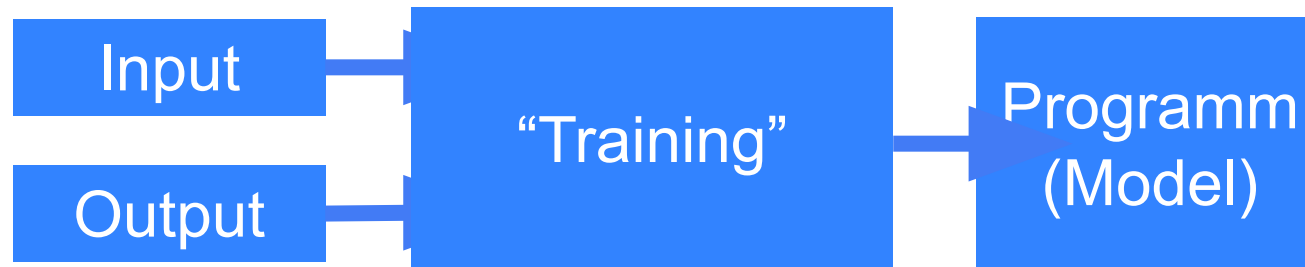
# Classificação

## Exemplo com SVM



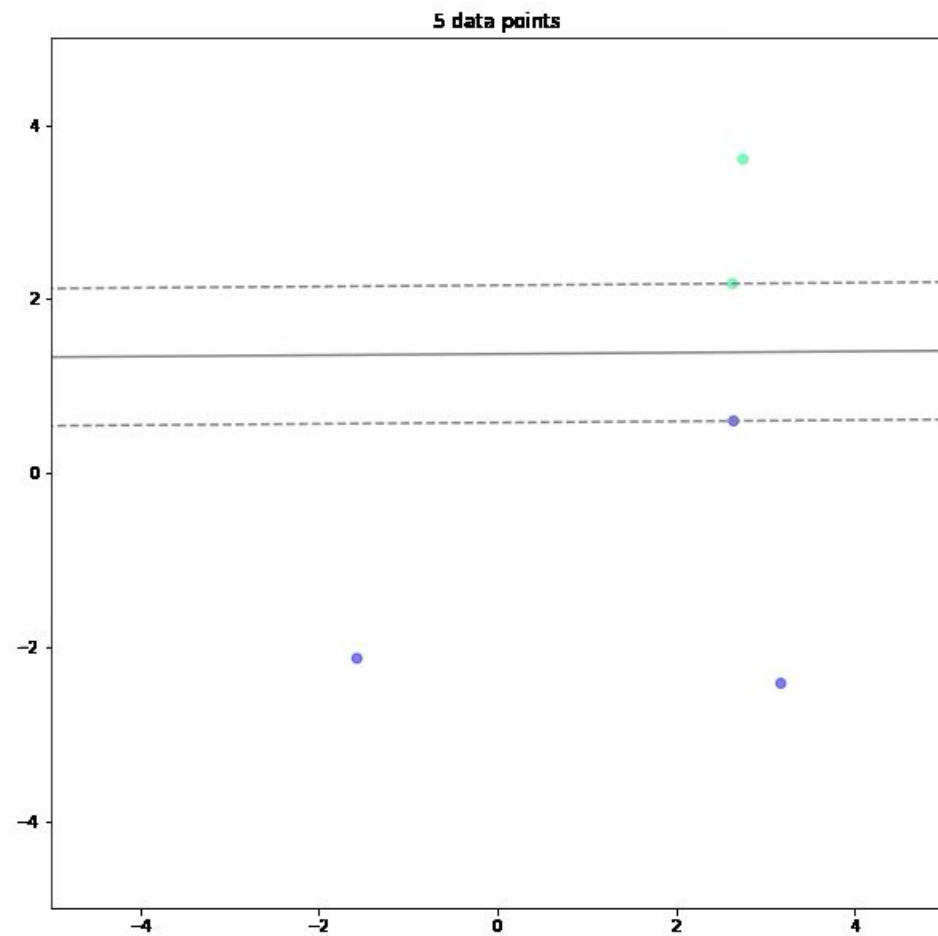
# Supervised Learning

## Classificação



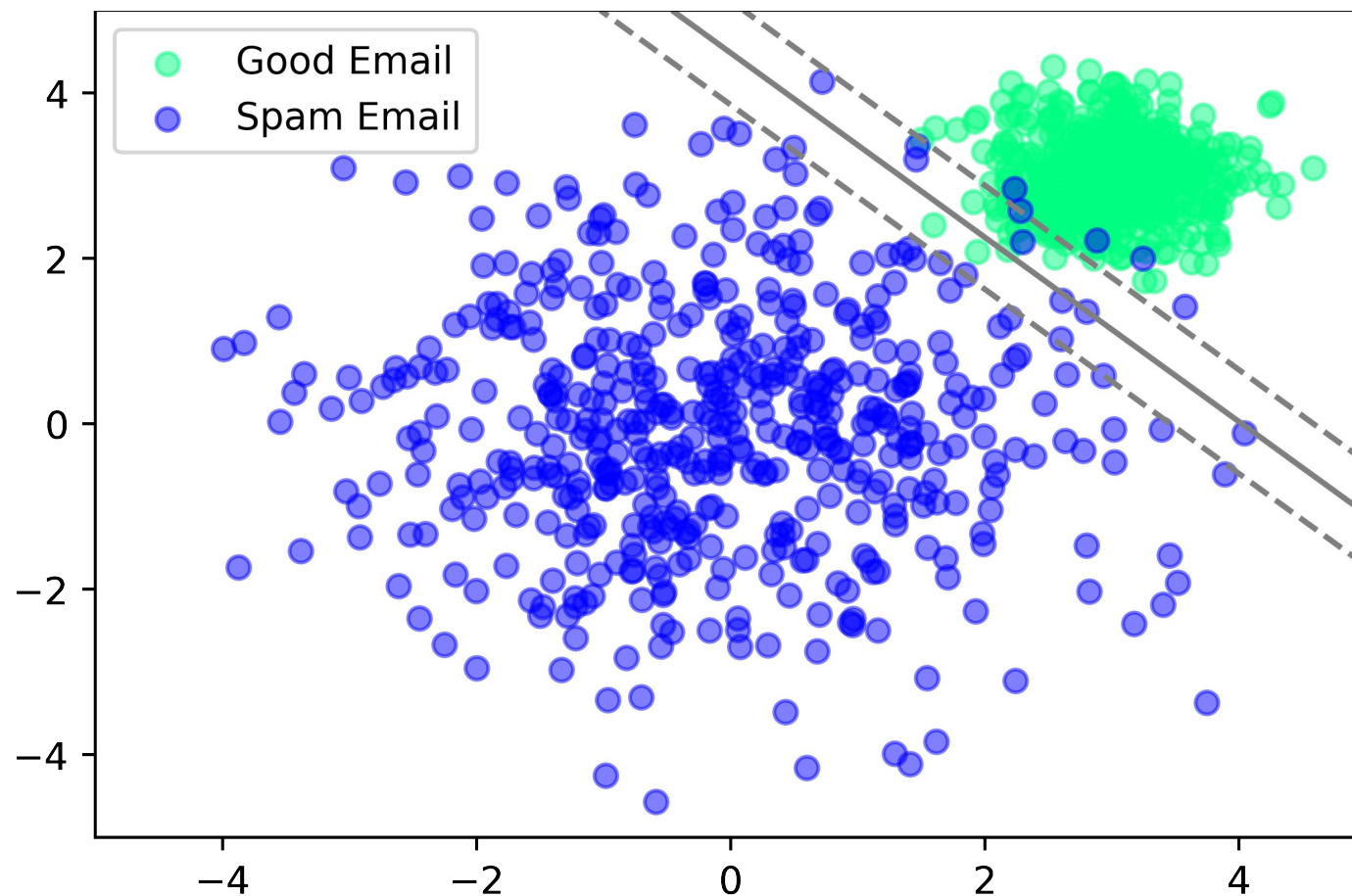
# Classificação

## Exemplo com SVM



# Classificação

## Exemplo com SVM





# Regressão

Supervised Learning

# Regressão

Classification

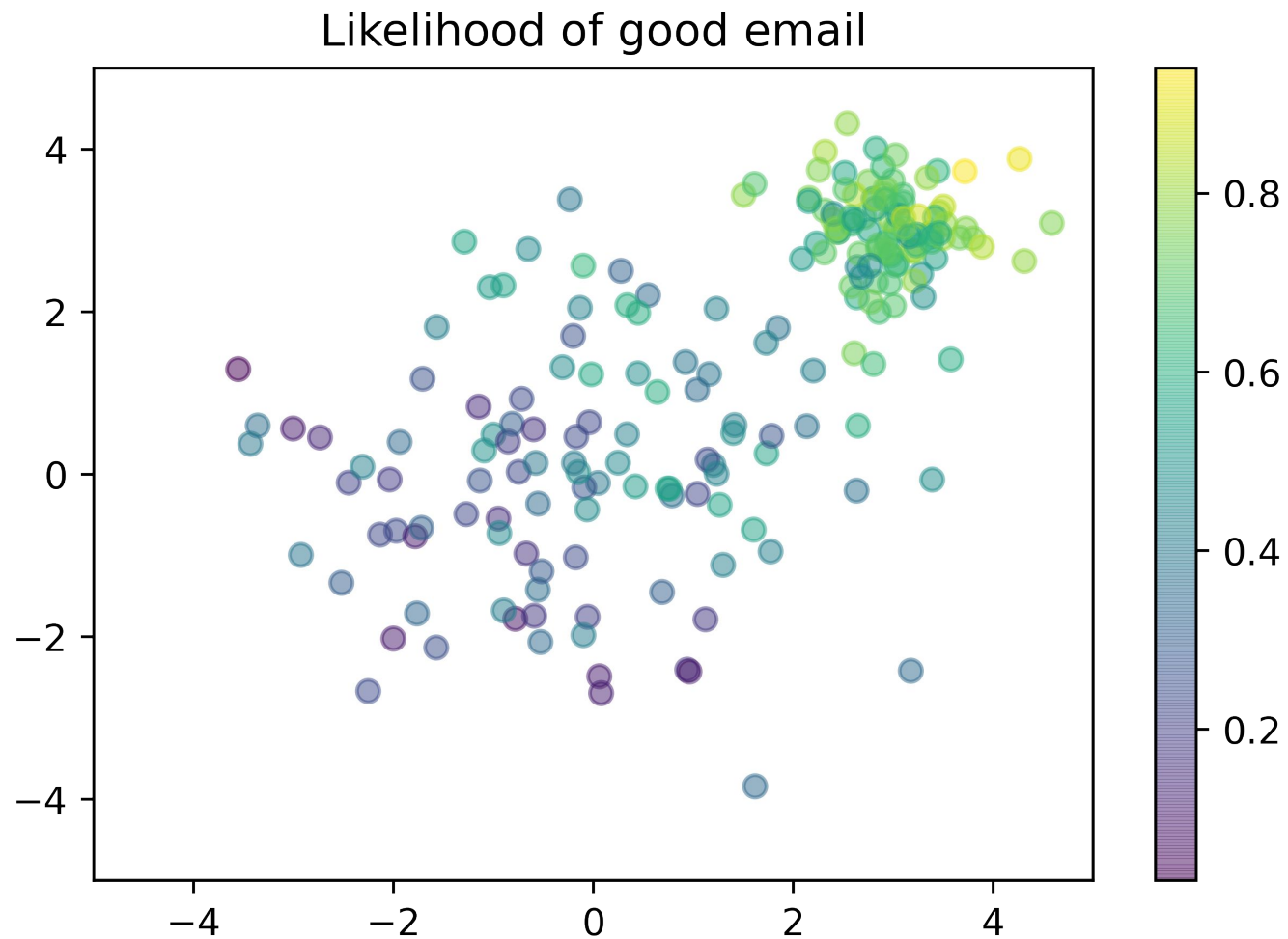
$$\begin{bmatrix} 2.1 \\ 1.8 \end{bmatrix} \Rightarrow \textit{good}$$

Regression

$$\begin{bmatrix} 2.1 \\ 1.8 \end{bmatrix} \Rightarrow .9$$

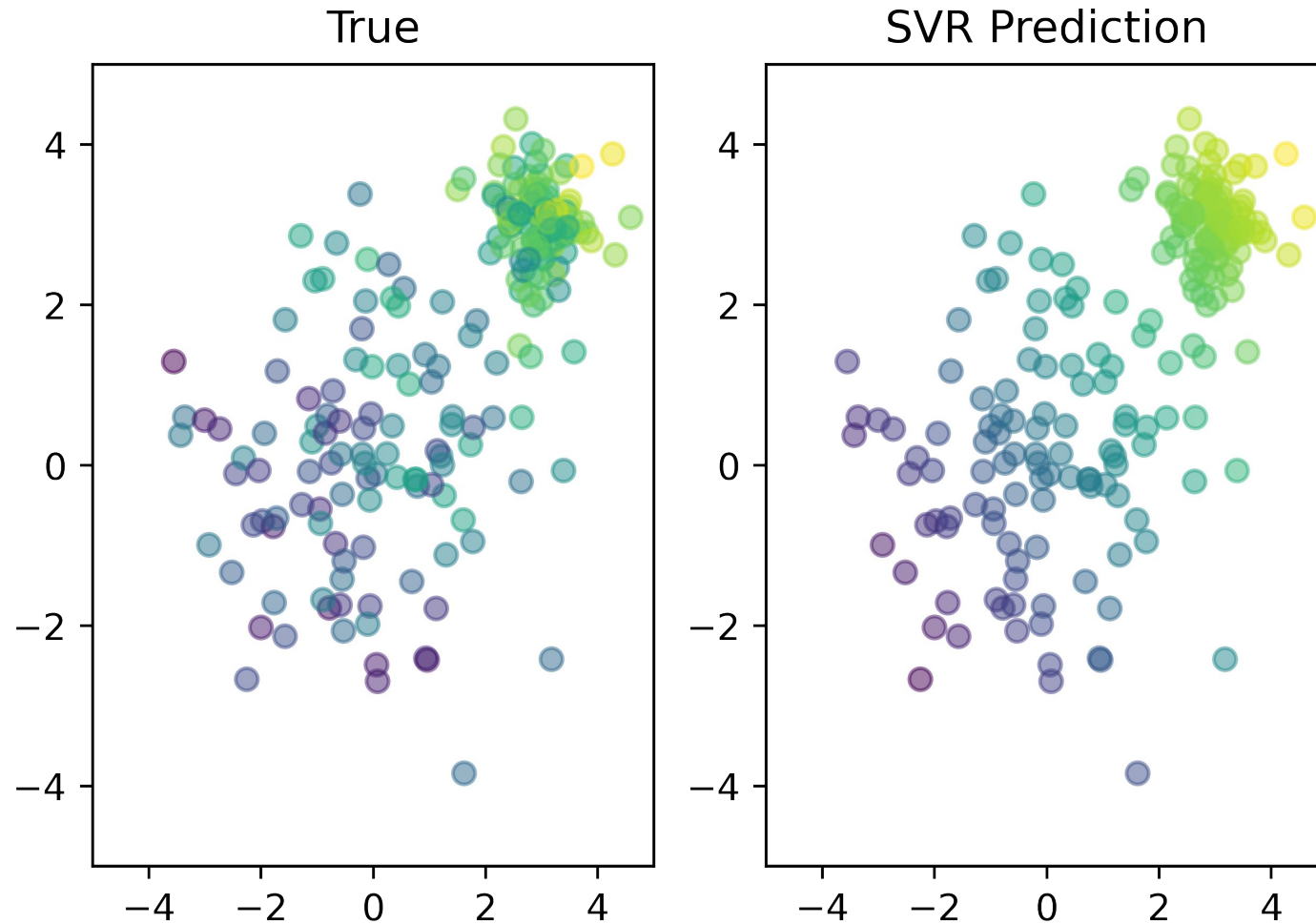
With a likelihood of 90%  
is this email good.

# Regressão



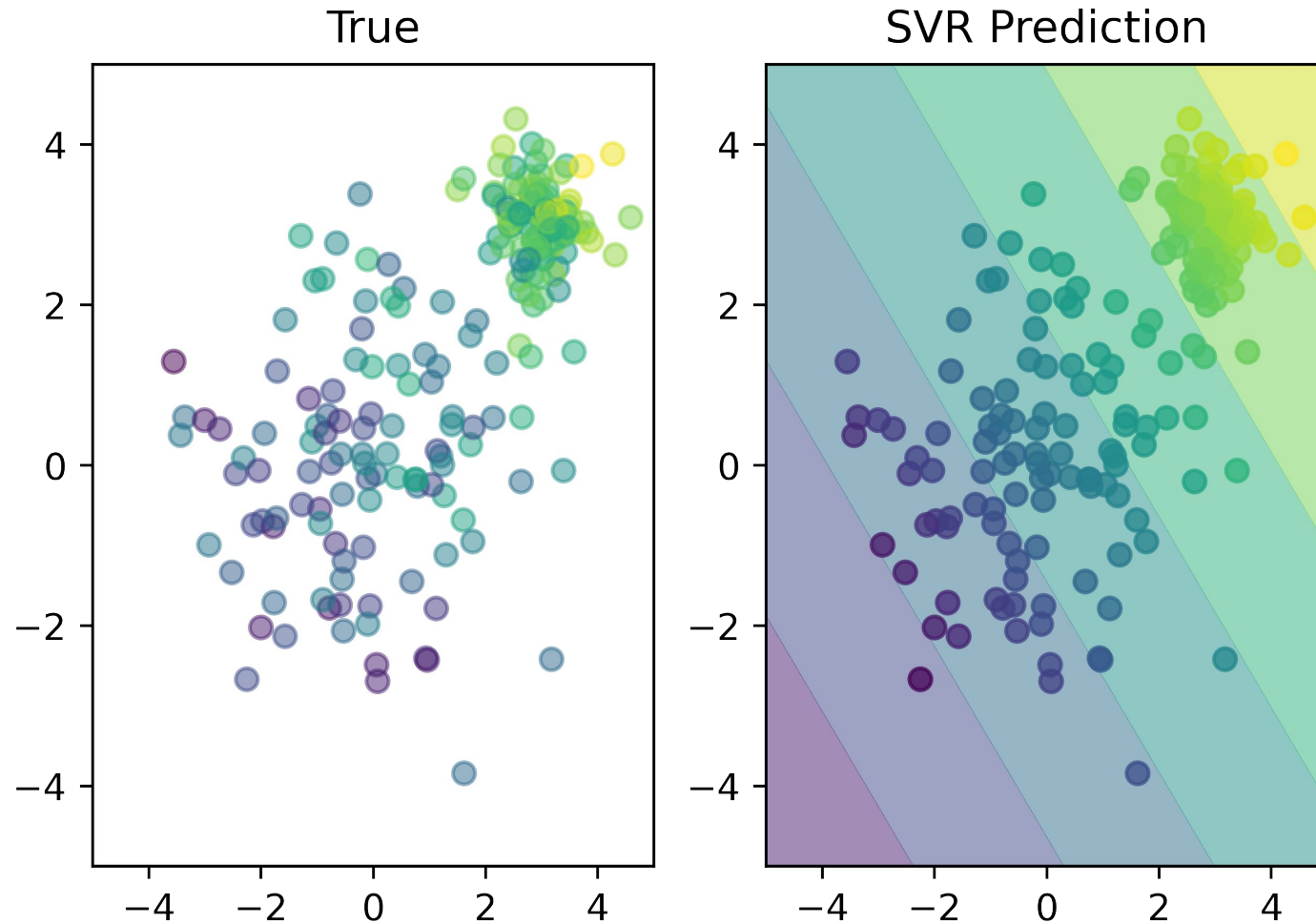
# Regressão

## Linear Support Vector Regression (SVR)



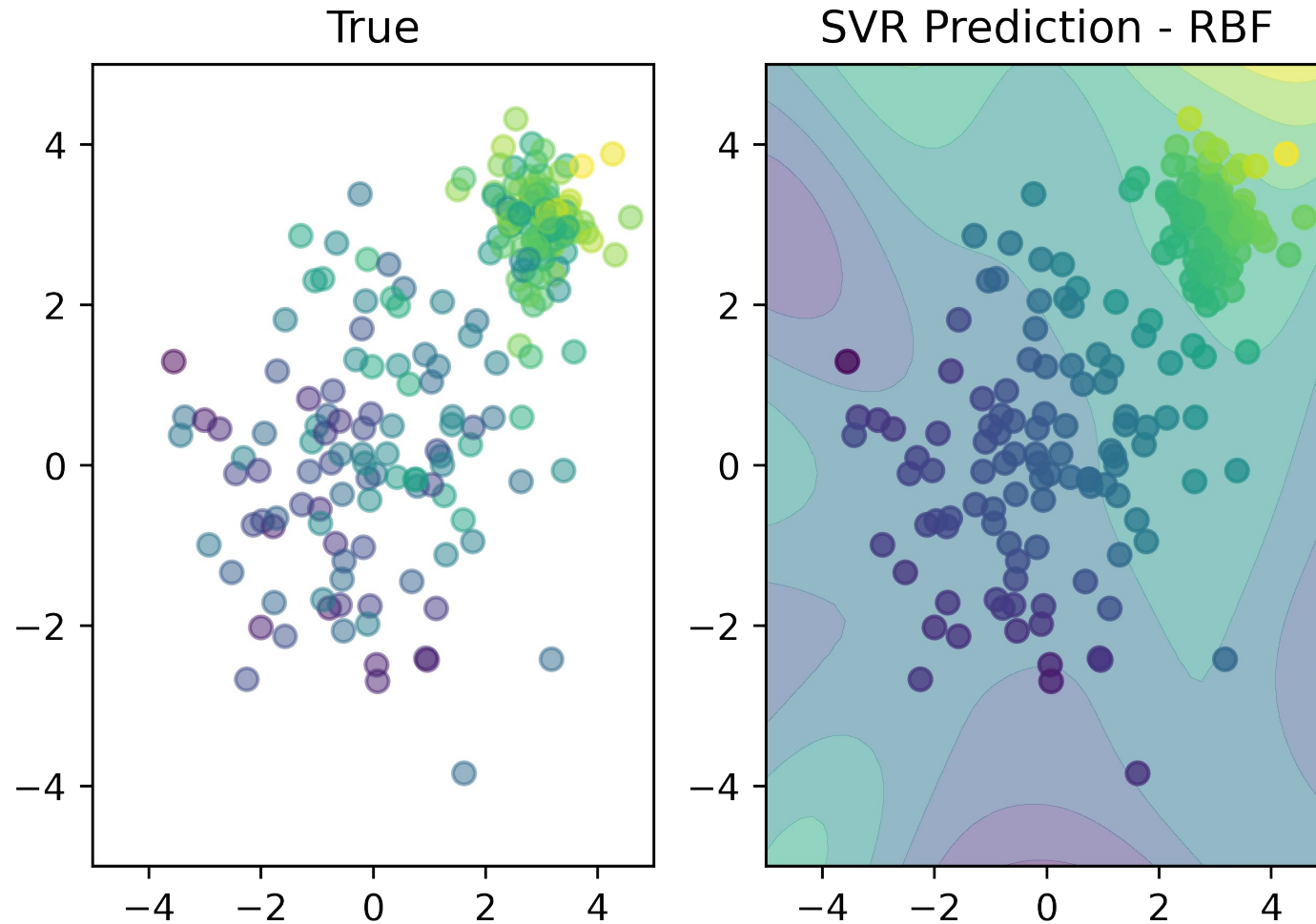
# Regressão

## Linear Support Vector Regression (SVR)



# Regressão

## RBF Support Vector Regression (SVR)



# Conclusão

## Supervised Learning

- Classificação
  - Dados rotulados (para cada entrada um rótulo )
  - O rótulo pertence à uma classe (ex., dog, [grey, dog])
- Regressão
  - Dados rotulados (para cada entrada um rótulo )
  - Os rótulos são valores contínuos (ex., 3.4, [4.5, -17.1])

# Referências

## Unsupervised Learning

- Página Pessoal: Sven Mayer
  - <https://sven-mayer.com/pml/index.html>



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Attribution: Sven Mayer

